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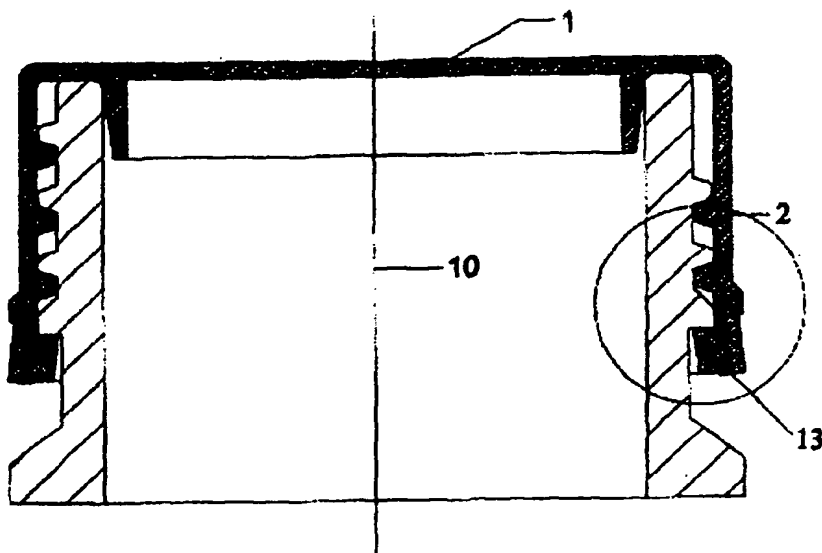
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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(54) Title: SEAL BANDED LID



(57) Abstract: New and distinguished characteristic of this lid breaking of seal feathers band (3). In broken part (12) there is only seal feathers band. There is no separate safety band. Feathers band hanging on lid bottom edge is extended towards lid base. When the lid is placed on the bottle, thinned (6) and thick tips (7) of feathers overlays on the dome on the bottle neck both from external diameter and bottom edge. During placing of lid on the bottle, breaking of thin tips of seal feathers band was prevented by resting on the circular step inside the lid. Feathers were placed with a right angle (18) with respect to radial axis of the lid. Therefore, if lid is wanted to open seal band is provided to be broken easily and quickly.

WO 02/14170 A1

DESCRIPTION

SEAL BANDED LID

5 Technical field that the invention is interrelated and known situation of technique: It is used for closing and sealing bottles made of any kind of material with plastic lid during filling. Presently used competition seal banded lids are broken partially or completely or it is opened with lid when it is wanted to open by end-user. Or the seal lid can be taken out of the bottle without breaking seal band for the purpose of sabotage.

10 Technical problems that the invention aims to solve : To eliminate problems related to the partial or complete opening of seal band with lid or taking the seal band without breaking out of the bottle.

Description of figures:

Figure 1 : Cross-sectional view of seal banded lid on the bottle.

Figure 2 : Closed figure of seal band locking jaws.

15 Figure 3 : Cross-sectional view of seal banded lid.

Figure 4 : Figure of feathers band.

Figure 5 : Partial image of feathers band.

Figure 6 : Figure of feathers band.

Figure 7 : Windows showing if feathers band exists on the lid.

20 Meanings of part numbers mentioned in the figures :

1.Lid Base

2.Upper Side of Lid

3.Seal Feathers Band

4.Circular Step

25 5.Lower Side of Lid

6.Thin Tip of Feather

7.Thick Tip of Feather

8.Lid Lower Circle

9.Dome on the Bottle Neck

30 10.Lid Axis

11.Uneasily Broken Material Bridge

12.Easily Broken Material Bridge

- 13. Feathers
- 35 14. Thinned Feathers
- 15. Center of Lid
- 16. Uncoupled Part
- 17. Alternative Breaking Zone
- 18. Angle B with Respect to Radial Axis of Lid
- 40 19. Angle with Respect to Lid Axis
- 20. Axis of Easily Breaking Material
- 21. Window Showing Sealing Band
- 22. Edge Simplifying Installation of Lid on the Bottle.

45 Description of Invention : Structure of seal band has been designed different than known competitions.

When invention lid is turned to open, band of sealing feathers (3) is forced to move from lid bottom side (5), easy breaking material bridge is torn.

50 Broken seal feathers band (3) indicates that lid was opened. Seal feathers band (3) of lids to be used in single-use and multi-use bottles are designed in different ways. For the lids manufactured for multi-use bottles; lid is broken bounded to its bottom side (5) by means of shortened feathers (14). In single-use bottles; seal feathers band is broken completely from lid bottom side and it remains in the form of a ring fixed on the bottle neck.

55 Seal feathers band (3) is located with an angle alpha (1) with respect to axis (10), through the lid base (1) by holding with easy breaking material bridges (12) to bottom side of the lid (5). Inner membrane conical structure formed because of appropriaterelying of seal feathers band (3) onto lid bottom circle (8) provides easy placing of lid to the bottle.

60 Seal feathers band (3) is radially pushed towards to the inner diameter of the lid by pressure of neck of bottle during installation of lid to bottle. During this time, thinned tips (6) and thick tips (7) of feathers band prevent breaking of weak connections of feathers (12) by laying on the circular step (4) inside the lid during installation.

65 Thanks to the conical shape of the lower circle (8) of the lid, during installation to the bottle, lid easily passes the dome (9) on the neck of the bottle. Radial force applied to feathers during installation of lid to the bottle causes the lid to pass the dome by

pressure by stretches bottom circle of lid (8) to outwards. It suppress thin tips of feathers (6) to outwards of dome on the neck of bottle (9).

Thin tips of feathers (6) waiting under pressure prevent reverse turning (13) of
70 feathers (2) without breaking is during opening of lid. This invention eliminated probability of removal of seal feathers (3) band without breaking.

Axis of feathers lined as symmetric and asymmetric on bottom side of lid (5) inclined with angle alpha (19) with respect to lid axis.

Feathers are lined by a slope with beta angle (18) with respect to radial axis of the lid.
75 Seal feathers band provides smooth installation of lid without any friction which maybe found on bottle neck the during installation. Since material bridges (12) to be broken are located right lower sides of feathers (20) the beta angles (18) of feathers start to decrease because tongue tips (6) compressed between dome of bottle (9) and the lid during rotational opening are fixed. Since the tips of feathers resting on the dome (13)
80 is fixed with right angle with respect to radial axis (15) of the lid it cannot advance. Lower right sides of feathers stretches away towards the bottom from lower circle (8) of the lid. Advancing movement of lid is added to this movement. Thus, breaking of seal feathers band (13) is provided with lesser revolution. According to the known situation of technique, feathers are torn and lose their functions during opening of lid. And tearing
85 distance is increased. Its installation to bottle is more difficult. When lid is wanted to be opened, band can not be broken easily and fast.

Method of Application of Invention to the Industry: Closing force (torque) applied during closing by turning the lid after filling is decreased by different design of seal band. When the lid is wanted to be opened, opening of seal band without tearing and
90 opening the lid for the purpose of sabotage have been prevented.

CLAIMS

Coupling of thin tips (6) of feathers (13) in seal feathers band (3) holding with easily
5 broken thin material bridge (12) to the lower circle of the lid (8) both to the bottom (7)
and outer diameter (6) of the dome (9) on the neck of bottle by extending towards the
lid base 81). Thus, during opening of lid of seal feathers band (3), refolding without
breaking/tearing is prevented. Prevention of loose of the function of the feathers (3)
during opening by inclination of the feathers by designing the same with a beta angle
10 (18) with respect to radial axis of the lid. Binding of feathers (13) to bottom tip of lid
(5) with easily broken material bridge (12), Connection of feathers with uneasily
broken material bridge (11) by symmetric and asymmetric lining of the same on inner
side (8) of bottom circle of lid. Resting of seal feathers band (3) within the lid by a
circular step (4) to prevent breaking of seal feathers band during placing of lid to bottle
15 by rotation. Strong connection of feathers band to bottom side (5) of the lid hence it
cannot be broken. Taking the breakable section to the mid part of lid (17) as an
alternative.

Beta angle of feathers (18) starts to decrease because of rotational force applied to
feathers during opening movement of lid by placing broken material bridge (12) to
20 lower right side of feathers (20), the tips of feathers laying on the dome cannot advance
(9). It advances towards the outside from the lower right side (5) of the lid. Advancing
movement of lid is added to this movement. Thus, shortening of the breaking distance
faster and easier breaking in much less rotation could be provided.

Easy installation of lid to bottle (22) with lower circle of lid by forming an angle
25 alpha (19). Sticking of seal band by holding from the thinned lids (14) lined on the
lower side of the lid during lid opening if not easily broken material bridge (11)
between un-thinned feathers is removed (16). Windows/openings (21) showing if seal
band is open when the lid has been placed on the bottle.

1/4

FIG. 1

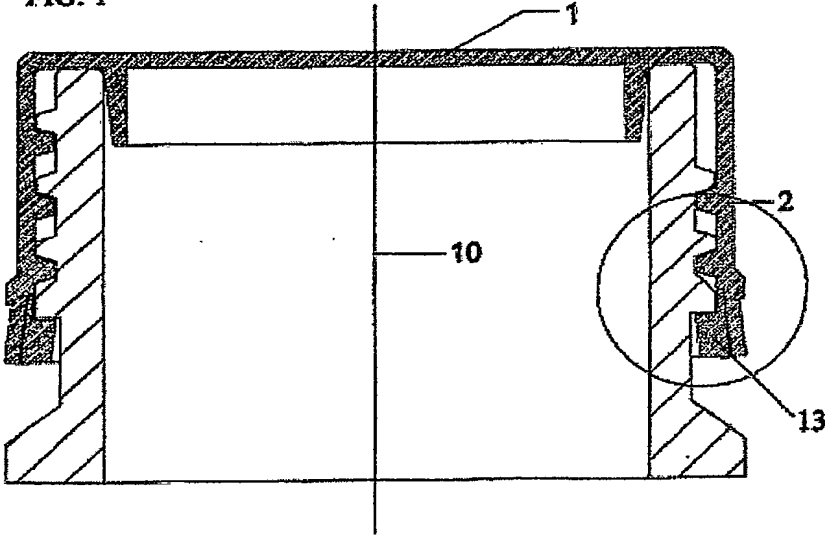
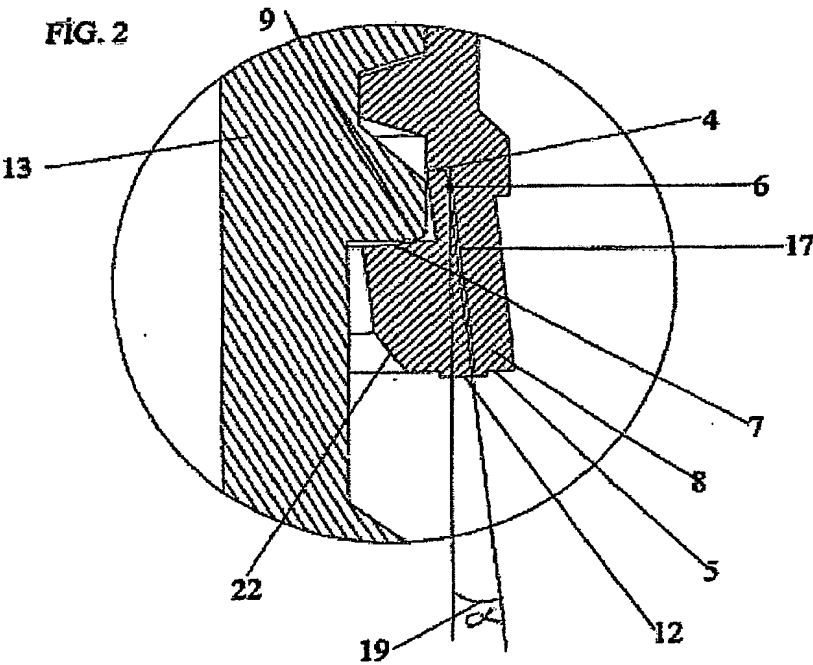
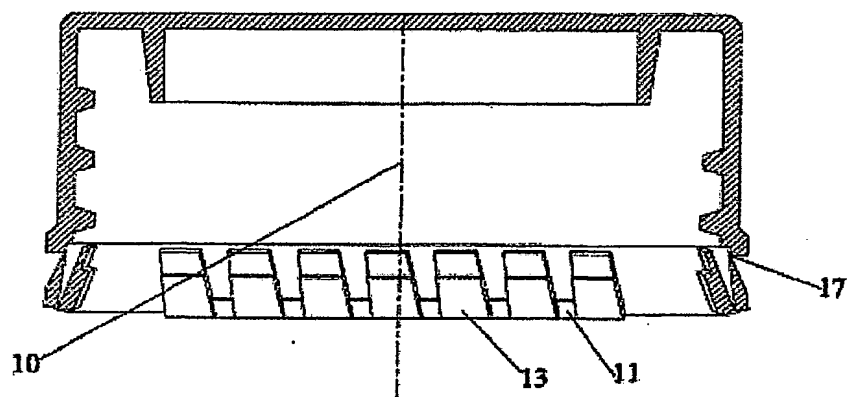


FIG. 2



2/4

FIG. 3



3/4

FIG. 4

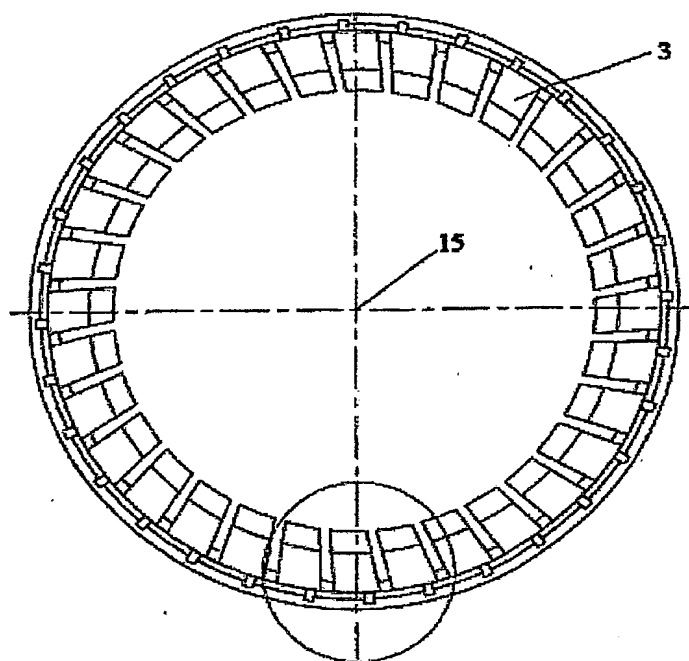


FIG. 5

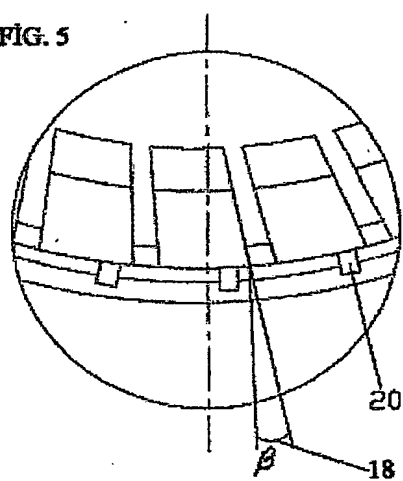


FIG.6

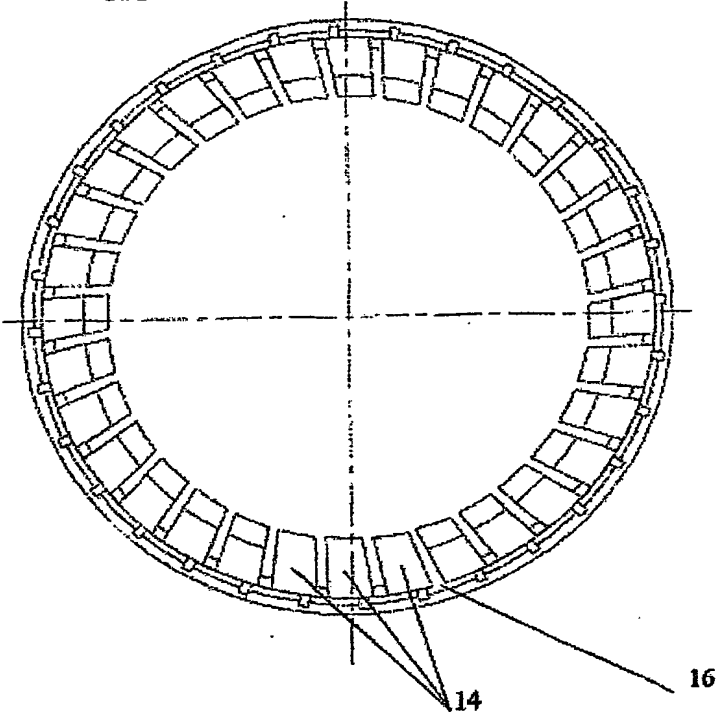
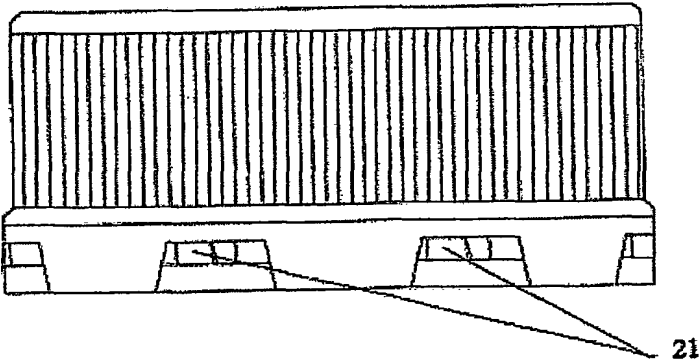


FIG.7



INTERNATIONAL SEARCH REPORT

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CLASSIFICATION OF SUBJECT MATTER

IPC⁷: B65D 41/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC⁷: B65D, B29C, B26F,

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, PAJ, EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5755347 A (Ingram) 26 May 1998 (26.05.98) <i>fig. 2-7, 21-34.</i>	1
A	EP 1008530 A1 (Owens-Illinois) 14 June 2000 (14.06.00) <i>fig. 2-16a.</i>	1
A	US 4595110 A (Herr) 17 June 1986 (17.06.86) <i>fig. 1-8.</i>	1
A	US 4572388 A (Luker) 25 February 1986 (25.02.86) <i>fig. 1-13.</i>	1

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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